

WHAT IS CLAIMED IS:

1. An optical sensor unit comprising:

a plurality of radio optical sensor means each including an optical sensor and a radio element for
5 transmitting and receiving of an information through communication with the optical sensor to and from an outside by radio; and

radio communication means for transmitting and receiving an electromagnetic wave as a radio signal
10 to and from the radio elements, which is located in a region apart from the radio elements, wherein:

the radio communication means transmits to each of the radio elements an electromagnetic wave as a signal for requesting transmission of photographing
15 information and an electromagnetic wave for supplying energy for photographing by the optical sensor and radio transmission and reception by the radio elements; and

each of the radio optical sensor means receives
20 the electromagnetic waves and transmits photographing information of a subject from the optical sensor to the radio communication means through the radio element.

25 2. An optical sensor unit according to claim 1, wherein each of the radio optical sensor means is provided on a curved substrate and adapted to

photograph the subject at different angles.

3. An optical sensor unit according to claim 2,
wherein each of the radio optical sensor means is
5 provided on a cylindrical substrate and adapted to
photograph a 360° image along a circumference of a
cross section of the substrate.

4. An optical sensor unit according to claim 2,
10 wherein each of the radio optical sensor means is
provided on a spherical substrate and adapted to
photograph an image in all directions.

5. An optical sensor unit according to claim 1,
15 further comprising a plurality of position/direction
detection elements for detecting positional
information of the radio optical sensor means and
directional information with respect to the subject
and conducting communication to the radio elements,
20 which are provided at different angles with respect
to the subject, photographed image information, the
positional information, and the directional
information to the subject being transmitted to the
radio communication means,

25 wherein the radio communication means
synthesizes images of the subject from the respective
information and displays the synthesized image.

6. An optical sensor unit according to claim 1,
wherein the radio optical sensor means communicate
information of light sensitivity to one another to
optimize exposure.

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7. An optical sensor unit according to claim 1,
wherein:

the radio elements have different values with
respect to at least one of an inductance and a
10 capacitance for each radio element; and

the radio communication means transmits an
electromagnetic wave having a different frequency to
access each of the radio elements.

15 8. An optical sensor unit according to claim 1,
wherein a digital modulation method selected from the
group consisting of amplitude modulation, frequency
modulation, and phase modulation is used as a method
of imparting an instruction of a transmission request
20 for the photographing information from the radio
communication means to each of the radio elements.

9. An optical sensor array comprising:

a plurality of radio optical sensor means each
25 including an optical sensor and a radio element for
transmitting and receiving of an information through
communication with the optical sensor to and from an

outside by radio,

wherein an electromagnetic wave as a signal for requesting transmission of photographing information and an electromagnetic wave for supplying energy for photographing by the optical sensor and radio transmission and reception by the radio elements are received from the outside, and photographing information of a subject from the optical sensor is transmitted to the outside through the radio element.

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10. A method of driving an optical sensor comprising:

arranging a plurality of radio optical sensor means independently of one another, which each include an optical sensor and a radio element for transmitting and receiving of an information through communication with the optical sensor to and from an outside by radio;

arranging radio communication means for transmitting and receiving an electromagnetic wave as a radio signal to and from the radio elements in a region apart from the radio elements;

transmitting from the radio communication means to each of the radio elements an electromagnetic wave as a signal for requesting transmission of photographing information and an electromagnetic wave for supplying energy for photographing by the optical

sensor and radio transmission and reception by the
radio elements; and

receiving from each of the radio optical sensor
means the electromagnetic waves and transmitting the
5 photographing information of a subject from the
optical sensor to the radio communication means
through the radio element.

11. A method of driving an optical sensor
10 according to claim 10, further comprising:

arranging in the radio optical sensor means a
plurality of position/direction detection elements
for detecting positional information of the radio
optical sensor means and directional information with
15 respect to the subject and conducting communication
to the radio elements, which are provided at
different angles with respect to the subject;

transmitting from the radio optical sensor
means photographed image information, the positional
20 information, and the directional information to the
subject to the radio communication means; and

synthesizing by the radio communication means
images of the subject from the respective information
to display the synthesized image.

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